

Validation for control of organically bound tritium in the environment of nuclear plants

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Scientific novelty lies in defining the role of organically bound tritium OBT in comparison with tritium oxide tritium water HTO.

Our researches of migration of tritium in the chain: storage of radioactive waste - ground water - water - drinking water showed that all samples contained OBT, but not tritium oxide HTO. Therefore, regulation of tritium should be made to the OBT, the rules on which (according to NRB-99/09) in 2,5 times less than for HTO.

Separated of the OBT from HTO done by filtering first through a carbon filter "Barrier", and then through a membrane TiM.

As a result of the measurements (analyzer TriCarb 3180) established significant levels of activity OBT: by tritium - 20 Bq / l (aqueduct water) to 1000 Bq / l (from wells near the waste storage) and carbon C-14 from 10 Bq / l (aqueduct water) to 600 Bq / l (from wells near the waste storage).

In conventional dosimetry methods based on measuring the HTO, may significantly underestimate the danger of OBT, because half-life of OBT from the human body for over a year, and HTO - 10 days.

Structured OBT well filtered, which suggests the feasibility of reducing discharges of tritium in the environment, as well as clean drinking water.